

# Epitomes

## Important Advances in Clinical Medicine

### Urology

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*The Council on Scientific Affairs of the California Medical Association presents the following epitomes of progress in urology. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, as to both scientific fact and important clinical significance. The items are presented in simple epitome, and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, researchers, and scholars to stay abreast of these items of progress in urology that have recently achieved a substantial degree of authoritative acceptance, whether in their own field of special interest or another.*

*The items of progress listed below were selected by the Advisory Panel to the Section on Urology of the California Medical Association, and the summaries were prepared under the direction of Dr Nachtsheim and the Panel.*

#### Best Screening Tests for Prostate Cancer

IN 1998 ALONE, about 500 men will be diagnosed with prostate cancer every day, and approximately 39,000 will die of the disease. Recognizing that population screening for prostate cancer using PSA and DRE have neither been proven or disproven to be effective to reduce the morbidity and mortality of the disease, authorities now recommend that physicians and health care organizations provide the pros and cons and let the well-informed patient decide. Just as it would be wrong to mandate screening, it would be just as wrong to not offer the option of early detection tests for prostate cancer.

Potential screening tests for prostate cancer include the digital rectal exam (DRE), the seromarkers prostate specific antigen (PSA) and prostatic acid phosphatase (PAP), and transrectal ultrasound of the prostate (TRUS). The DRE remains an important method of detecting many prostate cancers that may be missed with a PSA test. The PSA test is a simple blood test. Although PSA and PAP are both seromarkers for prostate cancer, the latter is inappropriate for use in screening because levels of PAP often do not become elevated until the disease has reached an advanced stage. Therefore, PAP should be used only for staging the disease after it has been diagnosed and never for screening. Transrectal ultrasound of the prostate is not a suitable screening test. It cannot differentiate many small cancers from surrounding non-cancerous prostate tissue, but it is appropriate for directing biopsies in men who have abnormal findings on DRE or PSA testing.

The PSA test has been approved by the US Food and Drug Administration as a method of screening for prostate cancer, but it is not perfect. Although a PSA level  $> 4.0$  ng/ml is considered abnormal, men with a level of between 4.1 and 10.0 ng/ml, often considered the "grey zone," will have prostate cancer detected about one-third

of the time. In men with a PSA level  $> 10.0$  ng/ml, approximately two-thirds will have cancer. The specificity is only 59% for all PSA levels  $> 4.0$  ng/ml. Sensitivity is also suboptimal, as levels  $> 4.0$  ng/ml will detect prostate cancer in only 79% of cases. In other words, the use of this cutoff point will miss 21% of patients with prostate cancer who have PSA levels of  $< 4.0$  ng/ml.

Several recent refinements may improve the clinical utility of PSA. Measurements of PSA density are based on the ratio between the PSA level and the prostate volume (as measured on transrectal ultrasound). A PSA density value less than 0.15 in a patient suggests that benign prostatic hypertrophy (BPH) alone may be responsible for the PSA elevation and a biopsy may not be indicated if the digital rectal examination is normal. This method helps adjust for the proportion of PSA elevation that may be related simply to BPH. However, the reliability of the method depends on reproducible measurements of prostate volume by transrectal ultrasound.

Assessments of PSA rate of change or PSA velocity are useful for men who undergo screening over a period of time. A PSA increase  $> 0.75$ – $0.80$  ng/ml over a one-year period may indicate an increased probability of prostate cancer and may signal the need for further evaluation. On the other hand, recent research has suggested that men who start with a very low PSA value less than 2.0 ng/ml have a very low probability of jumping to a worrisome PSA over one year and that every-other-year testing may be acceptable for this group. Some, but not all studies have suggested that digital rectal examination, ejaculation, or bicycle riding may raise the PSA level unrelated to prostate cancer leading to a false positive test. In a man with mildly elevated PSA level, these things should be avoided for 48–72 hours prior to repeat testing.

Recently, the use of age-specific reference ranges (ASRRs) has generated particular interest. These ranges,